

REMARKS

Claims 1 through 20 were originally presented for examination. In a first Office Action, the Examiner restricted claims 1 through 20 into two groups, namely, method claims 1 through 10 as Group 1, and product by process claims 11 through 20 as Group 2. In response, applicant elected the product by process claims 11 through 20. Applicant hereby accepts the restriction requirement without traverse.

In the Office Action of January 15, 2003, the Examiner rejected claims 11 through 20 under 35USC102(b) or 35USC103(a) as anticipated by or obvious in view of the Cope patent. In response, the above amendments are presented.

The Cope patent cited by Examiner is directed to a method of making a polymer and wood flour composite extrusion utilizing plastic extrusion materials that may be polyvinyl chloride mixed with cellulosic product. However, the Cope patent forms a consistent solid product that is a composite extrusion formed into a desired profile by an extruder and vacuum tank or shaper. No rollers or contra-rollers are used to cool down the product. In fact, rollers in the Cope system would defeat its purpose and adversely affect the desired profiles.

Cope does not teach forming a product having a foam skin and a foam core by using a post-extrusion slow cooling step with rollers as set forth in the new claim 21. It is stated in lines 27-31, column 5 of Cope patent that "The jacket 52 of the shaper 58 is kept at a temperature lower than the softening point of the extrusion material. As the material contacts the inside wall of the shaper, it begins to harden from the outside surface to the inner core." It is well known in the art that foaming of foam PVC starts after the exit of the die. Since the temperature of jacket 52 of the shaper 58 in Cope patent is kept at

temperature lower than the softening point, the surface layer of PVC material is immediately solidified. Foaming cannot occur in the surface and the profile has a smooth surface with or without hard skin.

To the contrary, the PVC material after the exit of the die is slowly cooled in this invention. Therefore, foaming takes place on the surface of the board to form an embossed texture (see lines 7, page 34 to line 4, page 35).

It is shown in lines 1-5, column 5 in Cope patent that the vacuum tank is used to produce PVC profile. The vacuum tank uses the vacuum to shape the profile and a smooth surface is necessary to maintain the vacuum. The vacuum can not be maintained (lost vacuum) on a surface of embossed texture and the dimension of the profile can be distorted. Therefore, a smooth surface of the profile has to be kept in Cope patent.

In addition, the glass transition temperature of PVC is 80°C according to Polymer Handbook. The softening point of PVC is related to the formula and is always much lower than the glass transition temperature. The temperatures of rollers 112, 113 and 114 used in this invention are controlled in the range of 25 to 250°C (from line 16, page 33 to line 2, page 34). Maintaining the temperatures of the rollers 112, 113 and 114 above the softening temperature keep the surface of PVC material soft, therefore foaming can occur in the surface to form an embossed texture.

In lines 6-11, column 6 Cope patent. "After the profile is cured and hardened, various finishes may be applied to the profile to enhance and highlight the profile. For example, the profile may be painted, stained glazed, brushed or clear coated. Hot foil stampings may also be applied for further decorative effect." Because of the fast cooling, the surface layer of the product is immediately solidified and forms a smooth surface in

the shaper 58 in Cope patent. Therefore, finishes, such as decorative effect, can be applied only after the profile is curved and finished. In the present invention, since the surface is soft, the embossed texture or decorative effect of the surface can be further enhanced with rollers 112, 113 and 114, which have pattern embossed surfaces (lines 4-9, page 35).

Finally, specific extrusion dies and shaper (or vacuum tank) are needed for specific profile products in the invention of Cope patent. For a different profile product, the corresponding extrusion die and shaper need to be installed. The present invention concerns a board product. Products of different thickness can be easily adjusted by the gaps between rollers 112, 113 and 114 and the extrusion die gap. The surface texture can also be changed by the temperatures of rollers 112, 113 and 114.

Additionally, Cope cools after mixing whereas the present invention process requires that mixing continue during cooling. And, again is hence a different process for this reason. Thus, Cope has a process that yields a high density product with different characteristics than the low density skinned product of the present invention.

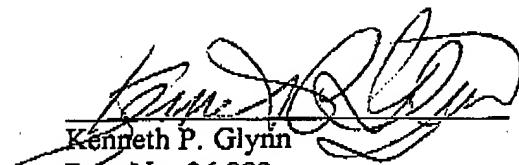
For all of the above reasons, the present invention as now claimed in the newly submitted claims, is neither anticipated nor rendered obvious by the Cope patent.

In view of the above amendments and remarks, it is urged that claims 21 through 25, the only claims remaining in the case, are in condition for allowance, and an early and favorable response is earnestly solicited.

Thank you.

Respectfully submitted,

Dated: 4 June 2003



Kenneth P. Glynn

Reg. No. 26,893

Attorney for Applicant  
24 Mine Street  
Flemington, NJ 08822  
(908) 788-0077 Tele  
(908) 788-3999 Fax

KPG/dam  
EM EU 535312064 US  
Cc: Raphael Li

CERTIFICATION OF MAILING BY EXPRESS MAIL

The undersigned hereby certifies that this document was delivered to the United States Post Office in Flemington, New Jersey 08822 between 7:30 a.m. and 4:30 p.m. Thursday, June 19, 2003, as EXPRESS MAIL, RETURN RECEIPT REQUESTED. The undersigned further declares that this Certification is made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under applicable sections of United States Patent and Trademark Office and may jeopardize the validity of the application or issuing patent related thereto.

  
Jaclyn Coppola

EM RRR No. EU 535312064 US  
(Docket No. IPC-109A)